

What is claimed is:

1. A prosthetic device for implanting in bone comprising:
  - a thread carrier;
  - 5 a base;
  - at least one bar fixing said base to said thread carrier;
  - said base and said bar having a top surface and a bottom surface,
  - said top and bottom surfaces having a bone adaptive surface and structure that is periodic.
- 10 2. The prosthetic device of claim 1 wherein only one of said top or said bottom surface has said period bone adaptive surface structure.
- 15 3. The prosthetic device of claim 1 wherein only said base has said periodic bone adaptive surface structure.
4. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure is corrugated.
- 20 5. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure has ridges with sharp edges oriented outwards from said top or bottom surface.
- 25 6. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure has rounded troughs, each of said troughs being concave.
7. The prosthetic device of claim 1 wherein the period of the bone adaptive surface structure characteristic varies.

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8. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure is a spiral.

9. The prosthetic device of claim 8 wherein said spiral centers on said  
5 thread carrier.

10. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure has surface structures that are parallel.

10 11. The prosthetic device of claim 1 wherein said periodic bone adaptive surface structure is a matrix of bowl-like depressions.

12. The prosthetic device of claim 11 wherein said depressions have a depth in a range from about 0.05 millimeters to about 0.25 millimeters.

15 13. The prosthetic device of claim 1 wherein said base is curvilinear in shape.

20 14. The prosthetic device of claim 1 wherein said base is substantially rectangular.

15. The prosthetic device of claim 1 wherein said base is curvilinear in part and substantially rectangular in part.

25 16. The prosthetic implant of claim 1 wherein said periodic bone adaptive surface structure includes ridges that are curvilinear and concave to a direction of prosthetic device insertion, and substantially vertical on a face facing away from said direction of insertion.

17. The prosthetic device of claim 1 wherein a height of said base and said bar varies radially.

18. The prosthetic device of claim 1 wherein said base has a first height  
5 and a second, shorter height;  
said second, shorter height being at a marginal zone;  
said marginal zone being substantially along a portion of a periphery  
of said base.

10 19. The prosthetic device of claim 18 wherein a radial depth of said marginal zone varies along said periphery of said base.

20. The prosthetic device of claim 18 wherein said marginal zones comprise reentrant angles.

15 21. The prosthetic device of claim 18 wherein said marginal zones are formed a depression relative to either said top surface or said bottom surface of said base and are flush with the other of said top surface or said bottom surface.

20 22. The prosthetic device of claim 18 wherein some of said marginal zones form depressions in one of said top surface or said bottom surface and other of said marginal zones form depressions in the other of said top surface or said bottom surface.

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